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EXAMINER	
HO, ALLEN C	
ART UNIT	**PAPER NUMBER**
2882	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,506	DINSMORE ET AL.	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. For any error corrected, which is not covered by an oath or declaration, *i.e.*, any error corrected after the filing of all oaths and declarations currently in the reissue application, applicant MUST submit a supplemental oath or declaration (a "catch-up" oath or declaration) prior to allowance stating "Every error in the patent which was corrected in the present reissue application, and which is not covered by the prior oath(s) and/or declaration(s) submitted in this application, arose without any deceptive intention on the part of the applicant. " (37 CFR 1.175(b)(1)), or language equivalent thereto. See MPEP 1444 for handling supplemental oaths and declarations.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the thermionic cathode must be shown or the feature(s) canceled from the claim(s). Fig. 5 only shows a photocathode. No new matter should be entered.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first cladding shell claimed in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second cladding shell claimed in claim 8 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for controlling claimed in claim 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

6. The claims are in improper format. No strike-through/brackets in new claims. Claims added to the patent must follow the number of the highest numbered patent claim (37 CFR 1.173(e)), and must be underlined in their entirety (37 CFR 1.173(d)).

7. Claims 9-12 are objected to because of the following informalities:

(1) Claim 9 recites the limitation "the outer wall of the optical fiber" in line 8. There is insufficient antecedent basis for this limitation in the claim.

(2) Claim 9 recites the limitation "the exterior of the optical fiber" in 15. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

8. Claims 13 and 14 are objected to because of the following informalities:

(1) Claim 13 recites the limitation "the outer surface of the optical fiber" in line 6. There is insufficient antecedent basis for this limitation in the claim.

(2) Claim 13 recites the limitation "the outer wall" in line 8. There is insufficient antecedent basis for this limitation in the claim.

(3) Line 14, "with in" should be replaced by --within--.

(4) Claim 13 recites the limitation "the exterior of the optical fiber" in line 15. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

9. Claim 15 is objected to because of the following informalities:

Claim 15 recites the limitation "said beam" in line 15. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

10. Claim 16 is objected to because of the following informalities:

Line 7, "a distal end" should be replaced by --the distal end--.

Appropriate correction is required.

11. Claim 17 is objected to because of the following informalities:

Claim 17 recites the limitation "said beam" in line 19. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 16 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites "wherein the thermionic cathode is responsive to the optical radiation transmitted to said distal end ...". This recitation is indefinite since it is unclear whether this distal end refers to the distal end of the flexible optical fiber or the distal end of the x-ray tube.

Claim 21 recites "a cathode within said tube and secured to said end of said optical fiber". This recitation is indefinite since it is unclear whether this end refers to the distal end or the proximal end of the optical fiber.

14. Claim 21 recites the limitation "said x-ray target" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Interference

15. Applicant has suggested an interference pursuant to 37 CFR 41.202(a) in a communication filed 20 November 2003.

Applicant failed to provide sufficient information to identify the application or patent with which the applicant seeks an interference. See 37 CFR 41.202(a)(1) and MPEP § 2304.02(a).

Applicant failed to (1) identify all claims the applicant believes interfere, and/or (2) propose one or more counts, and/or (3) show how the claims correspond to one or more counts. See 37 CFR 41.202(a)(2) and MPEP § 2304.02(b).

Applicant failed to provide a claim chart comparing at least one claim of each party corresponding to the count. See 37 CFR 41.202(a)(3) and MPEP § 2304.02(c).

Applicant failed to provide a detailed explanation as to why applicant will prevail on priority. See 37 CFR 41.202(a)(4), (a)(6), (d) and MPEP § 2304.02(c).

Claims 18, 19, and 21 have been amended in a communication filed on 23 August 2005 to provoke an interference. Applicant failed to provide a claim chart showing the written description for each claim in the applicant's specification. See 37 CFR 41.202(a)(5) and MPEP § 2304.02(d).

Applicant's response to this office action must correct the above mentioned deficiencies.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

17. An affidavit or declaration under 37 CFR 1.131 will not overcome the following rejection because the reference U. S. Patent claims the same patentable invention. MPEP § 715, section II, paragraph (B).

18. Claims 1-6, 9-19, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Lovoi (U. S. Patent No. 6,319,188 B1).

With regard to claim 1, Lovoi disclosed a therapeutic radiation source that comprise: (A) a flexible catheter (**12**) extending along a probe axis between a proximal end and a distal end of the catheter, the flexible catheter comprising optical delivery means extending along the probe axis and having an originating end and a terminating end, and adapted to for transmitting optical radiation incident on the originating end to the terminating end; (B) an optical source (**24**), including means for generating a beam of optical radiation directed to the originating end of the optical delivery means; (C) a radiation source (**14**) coupled to the terminating end of the optical delivery means, comprising a substantially rigid housing (**48, 50, 52**) enclosing an electron source (**32**) and a target (**58**), the housing defining a substantially evacuated interior region extending along a beam axis between the electron source at in input end (**40**) of the housing and

a radiation transmissive window (**48**, **50**, **52**) at an output end (**46**) of the housing (column 4, lines 14-25), (a) wherein the electron source and the target are disposed along the beam axis and spaced apart from and opposite each other, (b) wherein the electron source is adapted to emit electrons in response to optical radiation transmitted to the terminating end, and comprises a thermionic emitter having an electron emissive surface (column 2, lines 44-47), and (c) wherein the target is responsive to incident electrons to emit therapeutic radiation whereby therapeutic radiation emitted therefrom is directed through the radiation transmissive window; and (D) means (**18**, **30**, **36**) for establishing an accelerating electric field extending between the electron source toward the target, the electric field acting to accelerate electrons emitted from the electron source toward the target, wherein the optical delivery means are adapted are adapted for directing a beam of optical radiation transmitted therethrough to impinge upon the surface of the thermionic emitter, and wherein the beam of transmitted optical radiation has a power level sufficient to heat at least a portion of the surface to an electron emitting temperature so as to cause thermionic emission of electron from the surface.

With regard to claim 2, Lovoi disclosed a therapeutic radiation source according to claim 1, wherein the optical source is a laser (column 3, lines 22-23).

With regard to claim 3, Lovoi disclosed a therapeutic radiation source according to claim 1, wherein the therapeutic radiation comprises x-rays (column 4, lines 46-53).

With regard to claim 4, Lovoi disclosed a therapeutic radiation source according to claim 1, wherein the optical delivery means comprises a fiber optical cable assembly having a fiber optical element (**28**) extending from the originating end to the terminating end.

With regard to claim 5, Lovoi disclosed a therapeutic radiation source according to claim 4, wherein the means for establishing an accelerating electric field comprises: a power supply, having a first terminal (**30**) and a second terminal (**36**), and a drive means (**18**) for establishing an output voltage between the first terminal and the second terminal, the power supply being electrically coupled to the radiation source by way of the first terminal and the second terminal.

With regard to claim 6, Lovoi disclosed a therapeutic radiation source according to claim 4, wherein the fiber optical cable assembly further comprises: (A) an electrical conductive cable (**30**), wherein the fiber optical element is concentrically disposed around the electrically conductive cable; and (B) an electrically conductive outer shell (**36**), concentrically disposed around the fiber optical element, the fiber optical element forming an optically transmissive core (**28**).

With regard to claim 9, Lovoi disclosed a vascular probe that comprise: a flexible optical fiber (**28**) having a bore through its length; a first electrical conductor (**30**) extending through the bore of the optical fiber; a second conductor (**36**) on the outer surface of the optical fiber; an essentially cylindrical tube (**14**) formed of electrically insulative and x-ray transmissive material secured on a distal end of the optical fiber (column 4, lines 14-25); the tube having a proximal end (**40**) secured in a sealed connection to the outer surface of the optical fiber, at a positioned spaced back from the end of the optical fiber, and the tube having a distal end (**46**) and defining a vacuum chamber within the tube; a cathode (**32**) secured to the end of the optical fiber within the tube, the cathode being electrically connected to the first conductor in the bore of the fiber, the cathode comprising a thermionic cathode which is excitable by heat to emit electrons (column 2, lines 44-47); an anode (**58**) formed within the tube near its distal end, and an anode conductor

(**62**) connecting the second conductor from the outer surface of the optical fiber to the anode, with an x-ray target (column 4, lines 46-53) in the path of electrons moving from the cathode to the anode; optical radiation means (**24**) at the proximal end of the optical fiber for delivering optical radiation through the optical fiber, of sufficient power to heat the cathode so as to emit electrons; and means (**18**) for selectively switching electrical power to the cathode and anode to establish a potential between the cathode and the anode.

With regard to claim 10, Lovoi disclosed a vascular probe according to claim 9, wherein the optical radiation means comprises a diode laser (column 3, lines 22-23).

With regard to claim 11, Lovoi disclosed a vascular probe according to claim 9, the vascular probe further includes means (**18**) for controlling the potential between the cathode and the anode to control the level of x-ray output from the tube.

With regard to claim 12, Lovoi disclosed a vascular probe according to claim 9, wherein the anode includes the x-ray target (column 4, lines 46-53).

With regard to claim 13, Lovoi disclosed a vascular probe that comprises: a flexible optical fiber (**28**); a first electrical conductor (**30**) embedded in and extending through the length of the optical fiber; a second conductor (**36**) on an outer surface of the optical fiber; an x-ray tube (**14**) formed of electrically insulative material on a distal end of the optical fiber, the tube having a proximal end (**40**) in a sealed relationship with the outer surface of the optical fiber, and the tube having a distal end (**46**) and defining a vacuum chamber within the tube between the ends of the tube; a cathode (**32**) at the end of the optical fiber within the tube, the cathode being electrically connected to the first electrical conductor in the optical fiber, the cathode comprising a thermionic cathode which is excitable by heat to emit electrons (column 2, lines 44-47); an

anode (**58**) formed within the tube near its distal end, and an anode conductor (**62**) connecting the second conductor from the outer surface of the optical fiber to the anode, with an x-ray target in the path of electrons moving to the anode; optical radiation means (**24**) at the proximal end of the optical fiber for delivering optical radiation through the optical fiber, of sufficient power to heat the cathode so as to emit electrons; and means (**18**) for selectively switching electrical power to the cathode and anode to establish a potential between the cathode and the anode.

With regard to claim 14, Lovoi disclosed a vascular probe according to claim 13, wherein the anode includes the x-ray target (column 4, lines 46-53).

With regard to claim 15, Lovoi disclosed a flexible probe that comprises: (A) a flexible optical fiber (**28**) adapted for transmitting optical radiation incident on a proximal end to distal end; (B) an optical source (**24**) for generating optical radiation directed to the proximal end of the optical fiber; (C) an x-ray tube (**14**) coupled to the distal end of the optical fiber, comprising: (a) a thermionic cathode (**32**), responsive to optical radiation transmitted to the distal end of the optical fiber and incident upon a surface of the cathode to generate electrons, and (b) an x-ray target (**58**) responsive to incident electrons emitted from the thermionic cathode to emit x-rays; and (D) means (**18**) for accelerating electrons emitted from the thermionic cathode toward the x-ray target; wherein optical radiation has a power level sufficient to heat at least a portion of the surface to an electron emitting temperature so as to cause thermionic emission of electrons from the surface (column 2, lines 44-47).

With regard to claim 16, Lovoi disclosed a vascular probe that comprises: (A) an optical source (**24**) for generating optical radiation; (B) a flexible optical fiber (**28**) having a proximal end and a distal end, and adapted for transmitting optical radiation from the optical source from

the proximal end to the distal end; (C) an x-ray tube (**14**) coupled to the distal end of the optical fiber, comprising a substantially rigid housing defining a substantially evacuated interior region extending between a proximal end (**40**) and a distal end (**46**) of the housing, the housing containing a thermionic cathode (**32**) and an x-ray target (**58**) between its proximal end and the distal end, the distal end of the housing comprising x-ray transmissive material (column 4, lines 14-25), (a) wherein the thermionic cathode is responsive to the optical radiation transmitted to the distal end of the optical fiber to emit electrons, and (b) wherein the x-ray target is responsive to incident electrons emitted from the thermionic cathode to emit x-rays; and (D) means (**18**) for accelerating electrons emitted from the thermionic cathode toward the x-ray target; wherein the optical fiber is adapted to direct a beam of optical radiation transmitted therethrough to impinge upon a surface of the thermionic cathode, and wherein the beam of transmitted optical radiation has a power level sufficient to heat at least a portion of the surface to an electron emitting temperature so as to cause thermionic emission of electrons from the surface (column 2, lines 44-47).

With regard to claim 17, Lovoi disclosed a brachytherapy apparatus that comprises: (A) a flexible probe (**12**) including an optical fiber (**28**) adapted for transmitting optical radiation incident on a proximal end to a distal end; (B) an optical source (**24**) for generating optical radiation directed to the proximal end of the optical fiber; (C) an x-ray tube (**14**) coupled to the distal end of the flexible probe, comprising: (a) a thermionic cathode (**32**), responsive to optical radiation transmitted to the distal end of the optical fiber and incident upon a surface of the cathode to generate electrons, and (b) an x-ray target (**58**) responsive to incident electrons emitted from the thermionic cathode to emit a therapeutically effective amount of x-rays; and (D)

means (**18**) for accelerating electrons emitted from the thermionic cathode toward the x-ray target; wherein the optical fiber is adapted to direct optical radiation transmitted therethrough onto a surface of the thermionic cathode, and wherein optical radiation has a power level sufficient to heat at least a portion of the surface to an electron emitting temperature so as to cause thermionic emission of electron from the surface (column 3, lines 57-65).

With regard to claim 18, Lovoi disclosed an x-ray treatment apparatus that comprises: (A) a flexible fiber optic assembly (**12**), including an optical fiber (**28**) adapted for transmitting optical radiation incident on a proximal end of the fiber to a distal end of the fiber; (B) an optical source (**24**) for generating optical radiation directed to the proximal end of the optical fiber; (C) a power supply (**18**) including a first terminal (**30**) and a second terminal (**36**), and means for establishing an output voltage between the first terminal and the second terminal; and (D) an x-ray target assembly (**14**) affixed to the distal end of the optical fiber and electrically coupled to the power supply by way of the first terminal and the second terminal, the x-ray target assembly including an x-ray target (**58**) having at least one x-ray emissive element for emitting x-ray radiation in a predetermined spectral range in response to the optical radiation transmitted to the distal end of the optical fiber, the x-ray target assembly further including an optically driven thermionic emitter (**32**) adapted to generate electrons in response to the optical radiation transmitted through the optical fiber.

With regard to claim 19, Lovoi disclosed an x-ray treatment apparatus in accordance with claim 18, wherein the x-ray target assembly includes a substantially rigid housing defining a substantially evacuated interior region extending along a beam axis between the thermionic emitter at an input end (**40**) of the housing and an x-ray transmissive window at an output end

(**46**) of the housing (column 4, lines 14-25), the housing having the input end affixed to the distal end of the optical fiber, wherein upon activation the power supply establishes an accelerating electric field between the x-ray emissive element and the thermionic emitter, the electric field acting to accelerate electrons emitted from the thermionic emitter toward the x-ray target, and wherein the x-ray target is responsive to incident accelerated free electrons to emit x-ray radiation.

With regard to claim 21, Lovoi disclosed a probe that comprises: a flexible optical fiber (**28**); an optical source (**24**) configured to generate optical radiation directed to a proximal en dof the optical fiber; a tube (**14**) secured on a distal end of the optical fiber, the tube having a distal end (**46**) and a proximal end (**40**), the tube comprising x-ray transmissive material and defining a vacuum chamber within the tube (column 4, lines 14-25); a cathode (**32**) within the tube and secured to the distal end of the optical fiber, the cathode comprising a thermionic cathode which is excitable by heat to emit electrons (column 2, lines 44-47); and means (**18**) for selectively providing electric power to the cathode and the x-ray target to establish a potential between the cathode and the x-ray target.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lovoi (U. S. Patent No. 6,319,188 B1) as applied to claim 6 above, and further in view of Oettinger *et al.* (U. S. Patent No. 5,428,658).

With regard to claims 7 and 8, Lovoi disclosed a therapeutic radiation source according to claim 6. However, Lovoi failed to disclose a fiber optical cable assembly that further comprises a first cladding shell and a second cladding shell, the first cladding shell and the second cladding shell having an index of refraction less than the index of refraction of the transmissive core.

Oettinger *et al.* disclosed a fiber optical cable assembly that comprises an optically transmissive core (**250**), a first cladding shell (**260**) concentrically disposed between an electrically conductive cable (**208**) and the optically transmissive core, and a second cladding shell (**260**) concentrically disposed between the optically transmissive core and an electrically conductive outer shell (**204**), wherein the first cladding shell and the second cladding shell having an index of refraction less than the index of refraction of the optically transmissive core (claims 26 and 27). Oettinger *et al.* taught that the first cladding shell and the second cladding shell refract a light beam that is incident on an interface back into the optically transmissive core to eliminate absorption and scattering of the light beam (column 24, line 61 - column 25, line 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a first cladding shell and a second cladding shell, since a person would be motivated to increase transmission efficiency by reducing absorption and scattering of optical radiation being transmitted.

Allowable Subject Matter

21. The indicated allowability of claims 1-17 is withdrawn in view of the newly discovered reference(s) to Lovoi (U. S. Patent No. 6,319,188 B1).

Response to Arguments

22. Applicant's arguments filed 23 August 2005 with respect to claims 18 and 21 have been fully considered and are persuasive. The rejection of claims 18 and 21 under 35 U.S.C. 112, first paragraph, has been withdrawn.

23. Applicant's arguments filed 23 August 2005 with respect to claim 19 have been fully considered and are persuasive. The rejection of claim 19 under 35 U.S.C. 112, second paragraph, has been withdrawn.

24. Applicant's arguments filed 23 August 2005 with respect to the rejection(s) of claim(s) 18 and 19 under 35 U.S.C. 102(b) as being anticipated by Oettinger *et al.* (U. S. Patent No. 5,428,658) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lovoi (U. S. Patent No. 6,319,188 B1).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allen C. Ho

Allen C. Ho, Ph.D.
Primary Examiner
Art Unit 2882

29 January 2007